

LIGHT — VISIBLE LIGHT

- TO MAKE white  
ADD ALL COLORS
- TO MAKE BLACK  
TAKE AWAY ALL COLORS
- Why shirt GREEN?  
Green is Reflected +  
ALL other colors ARE ABSORBED

When atoms ABSORB ENERGY  
the electrons get excited  
AND JUMP to higher  
energy levels.

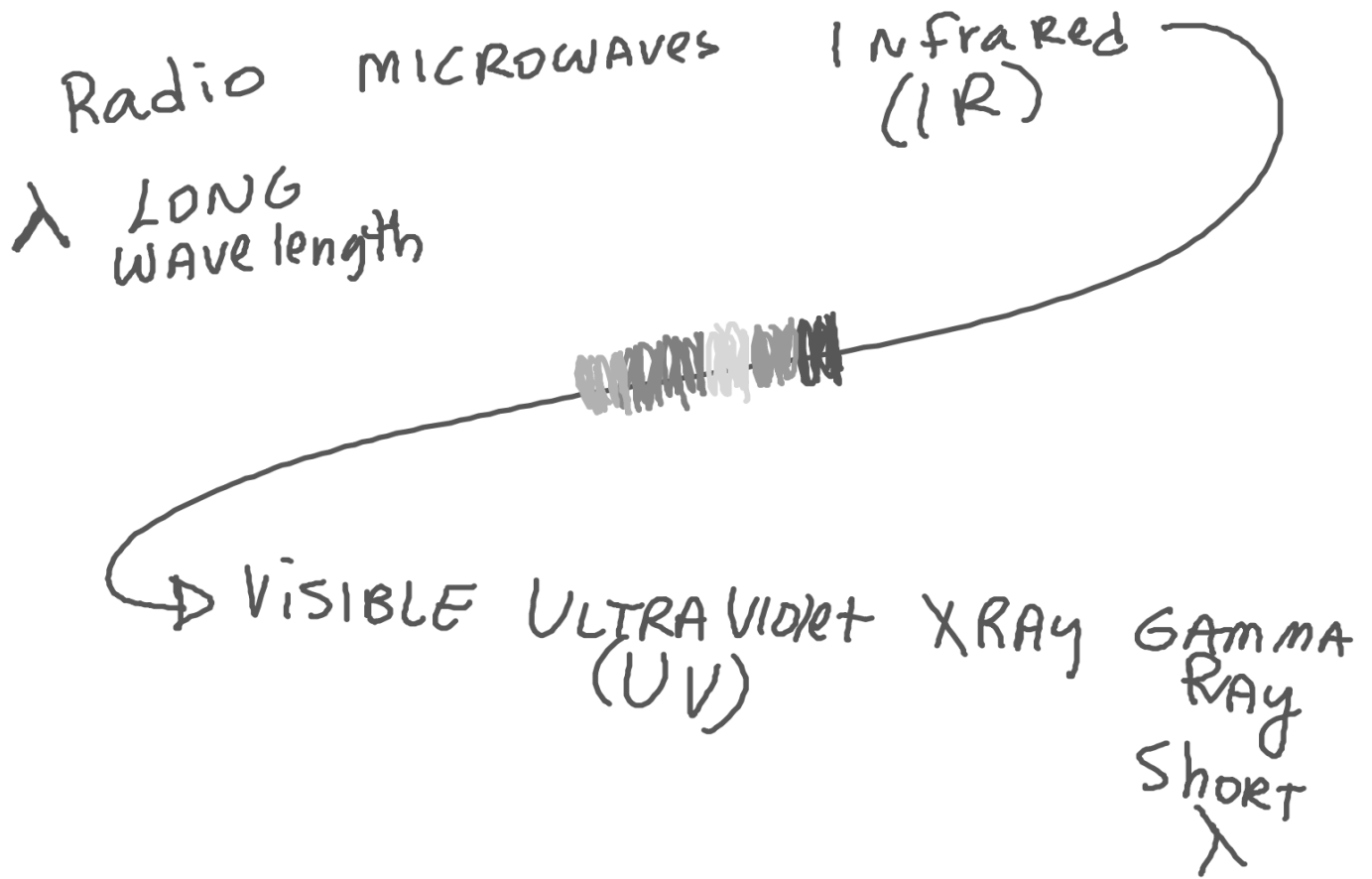
When the electrons RETURN  
TO ground state  
energy is released  
AND "seen" in Infrared, Visible  
+ ULTRA violet.  
Photon - Packet of energy

Three types of energy input

1. electricity
2. heat energy
3. wave energy (Light + Ultra Violet)

↑ Review ↑

VISIBLE LIGHT IS ONLY 3%  
of the total EM Spectrum



SHORTER  $\lambda$  are more dangerous  
TO US.

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RADIO   microwave   IR   VIS   UV   X   GAMMA

BUILDING

Bee

PINhead

molecule

Nu

to  
A KID

$10^4$  to  $10^{-1}$

10,000 to  
m .1

ameba

$10^{-7}$  to

$10^{-10}$

.0000001

.0000000001

.000000000001

atom

$< 10^{-12}$

$$A = 3.7 \times 10^2 \text{ m} \quad \text{RADIO}$$

$$B = 9.2 \times 10^{-8} \text{ m} \quad \text{UV}$$

$$C = 1.85 \times 10^{-13} \text{ m} \quad \text{Gamma}$$

$$D = 3.27 \times 10^{-2} \text{ m} \quad \text{microwave}$$

$$E = 1.93 \times 10^{-11} \text{ m} \quad \text{X-RAY}$$

A = 500 nm = Green

B = 403 nm = Violet

C = 733 nm = Red

D = 609 nm = ORANGE

E = 475 nm = BLUE